

What is claimed is:

1. A composition for increasing the melanin content of mammalian melanocytes comprising:

a) an effective amount of one or more compounds selected from the group consisting of:

- (i) bicyclic-monoterpene diols,
- (ii) pharmaceutically acceptable salts of (i),  
and
- (iii) prodrugs of (i); and

b) a suitable carrier.

2. A method for increasing the melanin content of mammalian melanocytes comprising administering to said melanocytes an effective amount of the composition of Claim 1.

3. A composition for treating a skin proliferative disorder or a disorder of keratinization comprising:

a) an effective amount of one or more compounds selected from the group consisting of:

- (i) bicyclic-monoterpene diols,
- (ii) pharmaceutically acceptable salts of (i),  
and
- (iii) prodrugs of (i); and

b) a suitable carrier.

4. A method for treating a skin proliferative disorder or a disorder of keratinization in a mammal comprising administering to a mammal in need of such treatment an effective amount of the composition of Claim 3.

5. A composition for preventing a skin proliferative disorder or a disorder of keratinization comprising:

a) an effective amount of one or more compounds selected from the group consisting of:

- (i) bicyclic-monoterpene diols,
  - (ii) pharmaceutically acceptable salts of (i),  
and
  - (iii) prodrugs of (i); and
- b) a suitable carrier.

6. A method for preventing a skin proliferative disorder or a disorder of keratinization in a mammal comprising administering to a mammal in need of such preventive treatment an effective amount of the composition of Claim 5.

7. A composition for altering or restoring pigmentation in mammalian skin, hair, wool or fur comprising:

a) an effective amount of one or more compounds selected from the group consisting of:

- (i) bicyclic-monoterpene diols,
  - (ii) pharmaceutically acceptable salts of (i),  
and
  - (iii) prodrugs of (i); and
- b) a suitable carrier.

8. A method for altering or restoring pigmentation in mammalian skin, hair, wool or fur comprising administering to a mammal in need of such alteration or restoration an effective amount of the composition of Claim 7.

9. A composition for treating a disease mediated by perturbations of the NO/cGMP/PKG pathway comprising:

a) an effective amount of one or more compounds selected from the group consisting of:

- (i) bicyclic-monoterpene diols,
- (ii) pharmaceutically acceptable salts of (i),  
and
- (iii) prodrugs of (i); and

b) a suitable carrier;

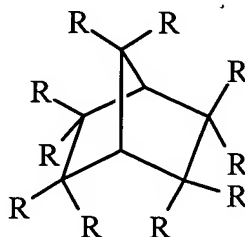
wherein said effective amount is effective to directly stimulate NO synthesis within cells.

10. A method for treating a disease mediated by perturbations of the NO/cGMP/PKG pathway in a mammal comprising administering to a mammal in need of such treatment an effective amount of the composition of Claim 9.

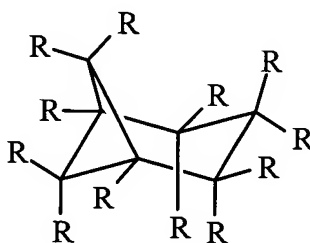
11. A composition for treating a disease mediated by perturbations of the NO/cGMP/PKG pathway comprising:

a) an effective amount of one or more compounds selected from the group consisting of:

(i) saturated C<sub>7</sub> to C<sub>50</sub> diols having the following structure:



or



wherein

each R is independently selected from R<sub>1</sub>; R<sub>2</sub>; hydroxyl, methyl, hydroxymethyl, -(CH<sub>2</sub>)<sub>n</sub>CH<sub>3</sub>, -(CH<sub>2</sub>)<sub>n</sub>OH, -(CH<sub>2</sub>)<sub>n</sub>OR<sub>1</sub>, -(CH<sub>2</sub>)<sub>n</sub>-CH(OH)-CHOH, -(CH<sub>2</sub>)<sub>n</sub>-CH(OH)-CH(OH)R<sub>1</sub>, -(CH<sub>2</sub>)<sub>n</sub>-CH(OH)-

$(\text{CH}_2)_n\text{-CH}_2(\text{OH})$ ,  $-(\text{CH}_2)_n\text{-CH}(\text{OH})-(\text{CH}_2)_n\text{-CH}(\text{OH})\text{R}_1$  or  $-\text{CH}_2\text{OR}_1$ ,  
wherein each n is independently an integer from 0-25;

each  $\text{R}_1$  is independently selected from hydrogen; halogen;  
an acyl or amino acyl group containing from one atom to  
twenty atoms, at least one of which is carbon, nitrogen,  
oxygen, or sulfur; or a group containing from one atom to  
twenty atoms, one of which is carbon, nitrogen, oxygen, or  
sulfur, and

$\text{R}_2$  is a linear, branched or unbranched, cyclic, bicyclic  
or polycyclic group containing from one atom to fifty atoms,  
at least one of which is carbon, nitrogen, oxygen, or sulfur;

(ii) unsaturated  $\text{C}_7$  to  $\text{C}_{50}$  diols having the  
above structure;

(iii) pharmaceutically acceptable salts of (i);

(iv) prodrugs of (i);

(v) pharmaceutically acceptable salts of  
(ii); and

(vi) prodrugs of (ii); and

b) a suitable carrier.

12. The composition of claim 11, wherein the  $\text{C}_7$  to  $\text{C}_{50}$   
diol is selected from the group consisting of:

(a) 5-norbornene-2,2-dimethanol,

(b) norbornane-2,2-dimethanol,

(c) 2,3-norbornanediol (exo or endo or cis or trans),

(d) 2,3-cis-exo-norbornanediol,

(e) 2-(propyl-1,2-diol)-norbornane,

(f) 2,7-norbornanediol,

(g) 2-hydroxy-2-norbornanemethanol,

(h) 1-(exo-2-norbornyl)-propan-1,2-diol,

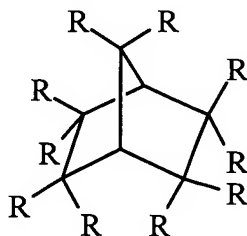
(i) 1-(endo-2-norbornyl)-propan-1,2-diol,

(j) methyl-5-norbornene-2,3-dimethanol,

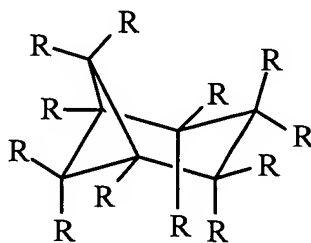
- (k) 2,3-cis/exo-pinanediol ([1R,2R,3S,5R] - [-] - pinanediol and [1S,2S,3R,5S] - [+] - pinanediol)),
- (l) (1R) - (-) - trans-pinane-1,10-diol,
- (m) 2,3-cis/exo-bornanediol,
- (n) 2,3-trans-bornanediol,
- (o) camphanediol,
- (p) camphenediol, and
- (q) 2,3-trans-pinanediol.

13. A method for treating a disease mediated by perturbations of the NO/cGMP/PKG pathway in a mammal comprising administering to a mammal in need of such treatment an effective amount of one or more compounds selected from the group consisting of:

- (i) saturated C<sub>7</sub> to C<sub>50</sub> diols having the following structure:



or



wherein

each R is independently selected from  $R_1$ ;  $R_2$ ; hydroxyl, methyl, hydroxymethyl,  $-(CH_2)_nCH_3$ ,  $-(CH_2)_nOH$ ,  $-(CH_2)_nOR_1$ ,  $-(CH_2)_n-CH(OH)-CHOH$ ,  $-(CH_2)_n-CH(OH)-CH(OH)R_1$ ,  $-(CH_2)_n-CH(OH)-(CH_2)_n-CH_2(OH)$ ,  $-(CH_2)_n-CH(OH)-(CH_2)_n-CH(OH)R_1$  or  $-CH_2OR_1$ , wherein each n is independently an integer from 0-25;

each  $R_1$  is independently selected from hydrogen; halogen; an acyl or amino acyl group containing from one atom to twenty atoms, at least one of which is carbon, nitrogen, oxygen, or sulfur; or a group containing from one atom to twenty atoms, one of which is carbon, nitrogen, oxygen, or sulfur, and

$R_2$  is a linear, branched or unbranched, cyclic, bicyclic or polycyclic group containing from one atom to fifty atoms, at least one of which is carbon, nitrogen, oxygen, or sulfur; or

- (ii) unsaturated  $C_7$  to  $C_{50}$  diols having the above structure;
- (iii) pharmaceutically acceptable salts of (i);
- (iv) prodrugs of (i);
- (v) pharmaceutically acceptable salts of (ii); and
- (vi) prodrugs of (ii).

14. The method of Claim 13 wherein the  $C_7$  to  $C_{50}$  diol is selected from the group consisting of:

- (a) 5-norbornene-2,2-dimethanol,
- (b) norbornane-2,2-dimethanol,
- (c) 2,3-norbornanediol (exo or endo or cis or trans),
- (d) 2,3-cis-exo-norbornanediol,
- (e) 2-(propyl-1,2-diol)-norbornane,
- (f) 2,7-norbornanediol,
- (g) 2-hydroxy-2-norbornanemethanol,

- (h) 1-(exo-2-norbornyl)-propan-1,2-diol,
- (i) 1-(endo-2-norbornyl)-propan-1,2-diol,
- (j) methyl-5-norbornene-2,3-dimethanol,
- (k) 2,3-cis/exo-pinenediol ([1R,2R,3S,5R]-[-]-pinenediol and [1S,2S,3R,5S]-[+]-pinenediol),
- (l) (1R)-(-)-trans-pinane-1,10-diol,
- (m) 2,3-cis/exo-bornanediol,
- (n) 2,3-trans-bornanediol,
- (o) camphanediol,
- (p) camphenediol, and
- (q) 2,3-trans-pinenediol.